

REMARKS

Claims 1, 4 to 9, 10, 11, 14 to 18, and 20 to 22 are pending in this application. Of these, claims 1 and 11 are independent.¹ Favorable reconsideration and further examination are respectfully requested.

Initially, the claims were objected to for the reasons noted on page 2 of the Office Action. The foregoing amendments are believed to address those objections.

Next, independent claims 1 and 11 were rejected for alleged double patenting over claims 1, 21, and 22 of U.S. Patent No. 7,382,789 (Yu '789) in view of claim 1 of U.S. Patent No. 7,486,614 (Yu '614). As shown above, subject matter (with edits) from dependent claims 3 and 13 was incorporated into claims 1 and 11, respectively. Dependent claims 3 and 13 were rejected also over claims 34 and 40 of Yu '614.²

Independent claims 1 and 11 are reproduced below.

1. A data transmission apparatus for use in a multiple service ring comprising at least two nodes electrically connected to at least one aggregate pipe and to at least one tributary, said data transmission apparatus comprising:

a tributary receiving (RX) framer electrically connected to a tributary, the tributary RX framer for deframing data frames received from said tributary and for extracting destination node addresses from received data frames;

a transmitting (TX) framer for encapsulating destination node addresses and data received from the tributary into data frames for the multiple service ring and for transmitting the data frames for the multiple service ring along an aggregate pipe to a downstream neighbor node in the multiple service ring;

a RX framer for receiving, and for deframing, data frames from the multiple service ring from an upstream neighbor node along an aggregate pipe of the multiple service ring to obtain at least destination node addresses and data;

a filter for determining data frames for a local node based on at least one obtained destination node address, and for forwarding other data frames that are not for the local node to said TX framer to forward to another node of the multiple service ring;

¹ The Examiner is urged to independently confirm this recitation of the pending claims.

² Office Action, page 5

a tributary TX framer for encapsulating data frames for the local node into tributary data frames and for sending the tributary data frames to a corresponding tributary;

wherein at least one aggregate pipe in the multiple service ring has an N-ring structure comprised of N-M unidirectional ringlets and M unidirectional counter-rotating ringlets, where N and M are integers and $1 \leq M < N$; and

a ring management unit for controlling use of ringlets in the at least one aggregate pipe, wherein controlling use of ringlets comprises assigning an (n-1)-th ringlet to transport data packets in a unidirectional direction and an n-th ringlet to transport control packets in a direction opposite to the unidirectional direction, where $1 < n \leq N$.

11. (Currently Amended) A data transmission method used with a multiple service ring that comprises at least two nodes electrically connected to at least one aggregate pipe and to at least one tributary, said method comprising:

(A) for data frames from a tributary:

receiving the data frames from the tributary;
deframing data frames received from said tributary;
extracting destination node addresses from received data frames;
encapsulating extracted destination node addresses and data received from the tributary into data frames for the multiple service ring; and
transmitting the data frames for the multiple service ring along an aggregate pipe to a downstream neighbor node in the multiple service ring; and

(B) for data frames from a neighbor node that is upstream along an aggregate pipe in the multiple service ring:

receiving data frames from the upstream neighbor node;
deframing received data frames to obtain at least a destination node addresses and data;
determining data frames for a local node based on at least one obtained destination node address;
forwarding other data frames that are not for the local node to another node of the multiple service ring;
encapsulating data frames for the local node into tributary data frames; and
sending the tributary data frames to a corresponding tributary;

wherein at least one aggregate pipe in the multiple service ring has an N-ring structure comprised of N-M unidirectional ringlets and M unidirectional counter-rotating ringlets, where N and M are integers and $1 \leq M < N$; and

wherein the method further comprises controlling use of ringlets in the at least one aggregate pipe, wherein controlling use of ringlets comprises assigning an (n-1)-th ringlet to transport data packets in a unidirectional direction and an n-th ringlet to transport control packets in a direction opposite to the unidirectional direction, where $1 < n \leq N$.

As we understand it, the cited claims of Yu '789 and Yu '614 do not disclose or suggest at least the features of claims 1 and 11 that are underlined above (which include features of former claims 3 and 13). The Office Action, however, states the following:

However, Yu '789 is silent to disclosing the data transmission apparatus according to claim 2, further comprising a ring management unit for controlling the use of the ringlets in one aggregate pipe, including assigning a specific (n-1)-th ringlet for transporting data packets in said (n-1)-th ringlet in unidirectional direction and a n-th ringlet for transporting control packets in said n-th ringlet in the opposite direction, where $1 < n \leq N$.

Yu '614 discloses the data transmission apparatus according to claim 2, further comprising a ring management unit for controlling the use of the ringlets in one aggregate pipe, including assigning a specific (n-1)-th ringlet for transporting data packets in said (n-1)-th ringlet in unidirectional direction and a n-th ringlet for transporting control packets in said n-th ringlet in the opposite direction, where $1 < n \leq N$ (claim 34, claim 40, ringlets).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply the teaching of Yu '614 into the system of Yu '789; since Yu '614 recited the motivation in col. 1, lines 50-52 which develops Multiplex service flow base on RPR and to provide the following capabilities such as the technology encapsulation and transport of Ethernet Frame relay.

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We respectfully disagree with these contentions.

Claims 34 and 40 of Yu '614 are shown below.

34. A multiple service ring system comprising a plurality of nodes, each node including a data transmission apparatus for implementing multiple service flow (MSF) in a multiple service ring (MSR) including a trunk pipe and at least two nodes each with at least one flow, said apparatus comprising:
a flow Rx framer coupled to said flows for converting data received from said flows into data packets of a predetermined protocol;
a transmission setup device for setting-up information indicating the destination node address and destination flow for packets of said predetermined protocol to be transmitted; and
a Tx framer for encapsulating said information indicating the destination node address and destination flow and the packets of said predetermined protocol into frames of the multiple service

³ Id.

ring and transmitting the same along said trunk pipe to a downstream neighbor node along the ring,

wherein said multiple service ring is a dual-ring structure consisting of a pair of unidirectional count-rotating ringlets, said multiple service flow is based on RPR, and said Rx framer is RPR Rx framer and said Tx framer is RPR Tx framer,

wherein each of said nodes is assigned a node address (NA), and data incoming to a node contains a destination node address, and said destination node address is XOR'ed with the NA of node with a Universally or Locally administered address to check for match or mismatch.

40. A data transmission method for implementing multiple service flow in a multiple service ring including a trunk pipe and at least two nodes each with at least one flow, said method comprising:

a flow Rx framing step of receiving data from a flow and converting the received data into data packets of a predetermined protocol;

a transmission setup step of setting-up information indicating the destination node address and destination flow for packets of said predetermined protocol to be transmitted; and

a Tx framing step of encapsulating said information indicating the destination node address and destination flow and the packets of said predetermined protocol into frames of the multiple service ring and transmitting the same along said trunk pipe to a downstream neighbor node along the ring,

wherein said multiple service ring is a dual-ring structure consisting of a pair of unidirectional count-rotating ringlets, said multiple service flow is based on RPR.

Contrary to what is stated in the Office Action, claims 34 and 40 do not claim, much less render obvious, ringlets that transport data packets in opposite directions, much less the specific underlined features of claims 1 and 11 above. In fact, the only reference to direction that we could find in claims 34 and 40 is underlined above. We do not understand this material to be a sufficient basis on which to sustain a double patenting rejection, obviousness-type or not.

Accordingly, withdrawal thereof is respectfully requested.

Dependent claims are also believed to define patentable features. Each dependent claim partakes of the novelty of its corresponding independent claim and, as such, each has not been discussed specifically herein.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or

concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

Applicants' undersigned attorney can be reached at the address shown below. All telephone calls should be directed to the undersigned at 617-521-7896.

Please apply any fees or credits due in this case to Deposit Account 06-1050 referencing Attorney Docket No. 18017-004US1.

Respectfully submitted,

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Date: _____

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